The Mystery of Painlessness

Frank Ballard

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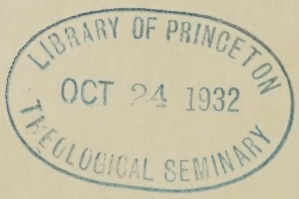

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THE MYSTERY OF PAINLESSNESS

An Appeal to Facts

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With Foreword by
S. PARKES CADMAN, D.D.

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FOREWORD

I HAVE read this manuscript with interest and pleasure. The author, Rev. Frank Ballard, is known to me as a gifted and accomplished writer, especially in apologetics. He has done splendid work on these lines for many years.

The freshness, not to say originality, of his views and their clear and forcible statements are helpful, indeed.

The problem with which he deals in this book comes before me in some form or other nearly every day, and I am grateful to have seen his wise treatment of it.

S. PARKES CADMAN.

Brooklyn, N. Y.

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I

THE PROBLEM OF SUFFERING

FROM time immemorial, long before the tragedies occurred which underlie the book of Job, and caused the perplexed lamentations of the Psalmists, humanity has been bewildered and saddened by the mystery of pain. The terrible amount of suffering among men, women and children has not only become more tragic in our days by reason of fuller information, but has continually bewildered thoughtful minds and overwhelmed tender hearts by its cruel intensity and inexplicable occurrence. It has thus become the favorite theme of all opponents of the Christian faith, as well as the hardest problem for sincere believers. Sir Leslie Stephen, eminent man of letters, whose ability and probity no

one ever questioned, declared that the sight of the world's tragedy made him an agnostic. Haeckel's bitter words doubtless found an echo in the minds of great numbers, when, in his later work, *The Wonders of Life,* he wrote:

"As we do not seek to have our emotions gratified by poetic fictions, we are bound to point out that reason cannot detect the shadow of a proof of the existence and action of a conscious Providence, or loving Father in Heaven. Every year we read with horror the statistics of thousands of deaths from shipwreck and railway accidents, earthquakes and landslips, wars and epidemics."

So that he went on to endorse Schopenhauer's pessimistic estimate, which speaks of

"this miserable world; this cockpit of tortured and suffering beings, who can only survive by destroying each other, in which the capacity for pain grows with knowledge, and so reaches its height in man. To the palpable sophistry

of Leibnitz we oppose a strict and honest proof that this world is the worst of all possible."

Even the great Huxley, despite his usual fair and judicious attitude, was led to write that

"Since thousands of times a minute, were our ears only sharp enough, we should hear the sighs and groans of pain like those heard by Dante at the gate of hell, the world cannot be governed by what we call benevolence."

A few years later the plausible superficialities and dogmatisms of *God and My Neighbor,* written by Robert Blatchford—an English journalist, whose opinions were held in high esteem by the newspaper readers of Britain—troubled many Christian believers. But there can be no question that in regard to the mystery of pain he only wrote what very many felt and could not understand:

"The world is full of sorrow, of pain, of hatred and crime, of strife and war. If God

is a tender, loving, all-knowing, and all-powerful Heavenly Father, why did He build the world on cruel lines? Why does He permit evil and pain to continue? Why does He not give the world peace, and health, and happiness?"

Or, again, consider the case of Sir Francis Younghusband—orientalist, traveler and administrator—a man whose ability and sincerity are equally unquestionable, who also, in his pathetic volume, *Within,* writes on this vexed theme. His experience is impressively summarized by H. G. Wells:

"It is the confession of a man who lived with a complete confidence in Providence until he was already well advanced in years. He went through battles and campaigns; he filled posts of great honor and responsibility; he saw much of the life of men, without altogether losing his faith. The loss of a child, an Indian famine, could shake it, but not overthrow it. Then, coming back one day from some races in France, he was knocked down by an automobile, and

hurt very cruelly. He suffered terribly, both in body and mind. His sufferings caused much suffering also to others. He did his utmost to see the hand of a loving Providence in his and their disaster, and the torment it inflicted; but being a man of sterling honesty and a fine essential simplicity of mind, he confessed at last that he could not do so. His confidence in the benevolent intervention of God was altogether destroyed. His book tells of this shattering, and how laboriously he reconstructed his religion upon less confident lines."

Such experiences might only too easily be reiterated. So that the summary of Dr. Peake, one of the ablest Biblical scholars now living, in the preface to his volume on *The Problem of Suffering in the Old Testament,* is all too true—"I am only one of many, for whom the problem of pain constitutes the most powerful objection to a theism otherwise adequate to our deepest needs." All who have left youth behind them, and are facing life's conflicts and difficulties with clear minds

and tender hearts, must sympathize with such an attitude. The very name of cancer—not to mention other dire diseases—makes one shudder with harrowing memories, if not also with depressing anxieties concerning living loved ones.

There is, mercifully, another side to all this. Not merely in discounting the exaggerations and correcting the false statements of such one-sided estimates as those we have quoted, but also in the wonderful preventive as well as palliative work of modern medicine and surgery. We are, indeed, comforted today with such hopes as the world has never before known, thanks to the inestimable devotion of such men as Pasteur, Lister, Osler, Ross, Rogers, and a host of others whose work in the realm of medical science is known the world over, through whom diseases are being both overcome and prevented, while the public health is established to an unprecedented extent. Typhoid fever, scarlet fever, smallpox, diphtheria, are being

reduced to a minimum. Plague is now seldom heard of, and even for lepers hope has blossomed into wonderful fruitage, in numberless cases of real and permanent recovery. It is, however, really necessary, in passing, to point out that all this improvement is in direct and palpable contradiction to the modern and mischievous craze which calls itself Christian Science. For this cult is as practically dangerous as it is theoretically absurd. To teach that the human body is a myth, and that all pain is a delusion—as is most definitely done in Mrs. Eddy's incoherent manual—is doctrine only fit for the inmates of an asylum. While practically this fanaticism would stop all these noble servants of mankind in their beneficent work, would shut up all our hospitals, put an end to all our medical missions, and let loose among our populations all types of infection, as well as block the path of still greater improvement by the muddled metaphysics of an unintelligible book

which pours scorn on all real medical science.

Meanwhile, it is absolutely certain that only on such methods of developing hygiene and medical care as are represented by such famous men as Sir George Newman, Sir Arthur Newsholme, Dr. Saleeby, and many others of like character and devotion, do all human hopes for the elimination of disease and the further reduction of the mystery of pain, depend. Already the span of life through their efforts is so lengthened that the child born today has the fair prospect of twelve years more of healthy life than his grandfather had when he arrived. Indeed, all the future is brightening in the way so forcefully referred to by Sir E. Ray Lankester in his Romanes Lecture; and if only the counsels of the New Health Society, so earnestly recommended by Sir W. Arbuthnot Lane, a foremost authority on the diseases of children, are adopted, human

suffering will be reduced to a minimum hitherto unknown.

Many painful questions, however, still remain, and some of our most distressing problems seem unanswerable. But it is itself a problem why, amid all who are thus troubled—either sadly and patiently as is the genuine Christian, or bitterly and blatantly as are some disbelievers—scarcely any take, apparently, the least notice of, let alone do justice to, another and far greater mystery, compared with which the whole mystery of pain is but as a shrimp-pool by the side of the ocean.

After close acquaintance with the literature of disbelief for half a century, I cannot recall one single case in which any fair or worthy reference has been made to *the undeniable and immeasurable mystery of painlessness,* through which humanity continues not only to exist, but to do almost all its work, and enter into all the enjoyments of which human life is capable. But this greater mystery of pain-

lessness is none the less real, ceaseless, unquestionable, measureless, and inexplicable. It not only gives the lie direct to the agnostic suggestion that this world is "built on cruel lines," but it affords an actual basis for all that faith and patience and hope which the Christian Gospel so earnestly urges. It is open to demonstration just in the degree in which we are prepared to study and appreciate the human body, in the light of all that modern scientific knowledge which is ever becoming more meticulous and exact. It is by no means easy to condense into a few pages what is really matter for a lifetime's study; but at least an outline may be drawn which only needs truthful and accurate expansion to make it an overwhelming confirmation of the One Hundred and Thirty-ninth Psalm, and an unmistakable, invaluable buttress of humble Christian belief.

First, as to the great world of life below the human level. When Haeckel quoted Schopenhauer with such approval, to the

effect that this world was merely a "cock-pit of tortured and suffering beings, who can only survive by destroying each other," it needed but the careful observation of an hour, anywhere, to demonstrate the utter falsity of such a gibe. Tennyson's well-known lines about nature's being "red in tooth and claw with ravine," and so shrieking against the Divine beneficence, have been far too often quoted. For they are so utterly one-sided as to illustrate what he himself elsewhere said, that "a lie which is half a truth," is "a harder matter to fight," than a downright lie. It would be easy also to show how, in other moods and words, Huxley answers his own pessimism. But it must suffice here to appreciate a testimony which can neither be gainsaid nor underestimated. It was Charles Darwin who wrote, concerning that very struggle for existence which has appalled so many lesser men:

"When we reflect on this struggle, we may console ourselves with the full belief that the

war of nature is not incessant, that no fear is felt, that death is generally swift, and that the vigorous, the healthy, and the happy, survive and multiply."

How emphatically this testimony is endorsed by such competent witnesses as Dr. Alfred Russel Wallace—who "hit on" the theory of the survival of the fittest simultaneously with Darwin—and many others, must be here omitted, though it is definite and unmistakable. For the moment we will confine our attention to human beings—although what is pointed out applies equally, *mutatis mutandis,* to the whole living world, and overwhelming illustrations thereof could easily be supplied. But it will be more than enough to appreciate the truth as it relates to men, women, and children. Such appreciation, however, will require much closer acquaintance with the actual facts of every day's life than is customary. For it is only through the genuine, careful, honest, and thorough study of these facts, that

the right standpoint can be attained for the just comparison of the two great mysteries of painlessness and pain, amidst which our life's brief hour is spent.

In proportion to the clear thoroughness of such appreciation of the commonest daily actualities of our own existence, will be the irresistible and overwhelming conclusion reached above. Even this, that when the mystery of pain is taken at its worst—to be quite sure, let us say its awful worst—it is but a trifle, when put into fair comparison with that ceaseless and unmeasured mystery of painlessness which the overwhelming majority of some 1,800,000,000 of human beings on this planet, at any given moment, exemplify. It is confessedly a tremendous avowal, to estimate human pain as a comparative trifle. Far too tremendous to be hastily made or easily accepted. Certainly it is not here hastily made, but only after more than half a century of such opportunities and duties as only come to med-

ical men, and to Christian ministers who are faithful to the calls of a pastorate either in town or country. In the light of many such experiences, it seems heartless to appear to underrate the extent and intensity of human suffering, and incredible that there can be any greater mystery. And yet if it be true—as will here be shown—that the mystery of painlessness does indeed exceed that of human pain, enormously and immeasurably, as surely as in any great city the number of healthy working people exceeds the number of invalids, it is all the present answer that need be given by a reasonable faith, to such diatribes of disbelief as are quoted above. It is, indeed, quite sufficient in itself to justify and confirm the strong avowal of the late Sir Henry Thompson, so long prominently associated with the Royal College of Surgeons and London University, who set himself the task of twenty years' investigation—"solely for the purpose of seeking truth for my own

personal needs and enlightenment"—in facing all the facts of life, amid all the special opportunities that came necessarily to a widely-known expert surgeon. Here is his deliberate and openly avowed conclusion:

"I was now assured, by evidence which I could not resist, that all which man—with his limited knowledge and experience—has learned to regard as due to Supreme Power and Wisdom, although immeasurably beyond his comprehension, is also associated with the exercise of an absolutely beneficent influence over all living things, of every grade, which exist within its range."

That is, at all events, a firm natural foundation for a faith which would be as intelligent and honest as humble and sincere.

The well-worn assumptions of agnosticism that if God were really the loving Heavenly Father whom Jesus Christ reveals, there would be either no pain at all, or else only the wicked would be ill, while

all good people would be healthy, have been shown again and again to be as irrational in philosophy as contrary to Christian faith. While in regard to the much more difficult and often harrowing query, as to the exact incidence and tragic intensity of some cases of individual suffering, we are still in the same position as the prophets and psalmists of old. The pleading of Jeremiah (12: 1); the bewilderment of the psalmist (Ps. 73: 1-14, etc.); and the anguished entreaty of the apostle (2 Cor. 12: 8); all repeat themselves in our modern experience, their wider range causing even deeper perplexity. With our present faculties, and in this life only, numberless cases of poignant but undeserved suffering must ever remain inexplicable. Every one with an observant eye and a tender heart will have chastening memories of instances which seemed to be cruelly contrary to all that human judgment would have expected or awarded. Why such a noble and high-

souled patriot as William Ewart Gladstone, or such a saintly and devoted woman as Catherine Booth, or such a lofty and inspiring character as Sir Henry Jones, should be subjected to the horrors of cancer, we shall never know this side of the grave. But if our faith remains, we can wait with patience for the revelations of the other side. The question of questions is whether we can retain such faith, in face of all the painful happenings which thus trouble us, and which are continually so gruesomely tabulated by the clever and irrepressible rationalist press. That is confessedly the crux of Christian theism.

And this, in plain terms, is the answer. If on rational principles faith is shaken by the mystery of pain, upon the very same principles it is restored, established, and made unshakably triumphant, by the greater mystery of painlessness. If God is rightly credited with all that dark side of human existence which is not definitely

due to moral evil, then certainly, in all honesty, He must also be regarded as the ultimate source of all that bright and happy side of human being which is manifestly not man's own creation. When, thereafter, these two estimates are fairly compared, it becomes plain that the bright side exceeds the dark, as truly as the light and heat of the mid-day sun exceed the cold illumination of the moon.

But more than that. If we were here considering the whole mystery of good, as against that of evil, such a comparison would be enormously enhanced. For in spite of all the ancient theological depressing estimates of human nature, from Augustine through Calvin to this hour, and all the deplorable and degrading publications of humanity's worst doings in our daily press, the amount of good ceaselessly energizing in mankind immeasurably exceeds that of evil in our midst. There are also valid reasons for believing that such excess is going to grow from

more to more with every succeeding generation, until wars shall be no more than tragic memories, and modern society shall actually embody the lofty ideals of the Lord's Prayer.

Here, however, for the moment, we will close our eyes to all but physical facts, and base our inferences on these alone. We will take as a typical case the daily life of an average normal healthy man, who is not ruining his body by vicious habits, and note carefully, as much as our space permits, what it really involves. Of the many mistranslations in the Authorized Version of the Bible, the reference in Phil. 3: 21 to "this vile body" is one of the worst. For no falser estimate is conceivable. Its most frequent use occurs, unfortunately, just where it is most out of place, namely, in the funeral service in the Anglican Prayer Book. But whenever and wherever such a misrepresentation is uttered in public, the reader ought to follow it up with the plain reading of Psalm

139, which is both more true and more significant now than when it was written, some two millenniums and a half ago. And it should be emphasized by the unmistakable protest of the apostle—"Do you not know that your bodies are part of Christ's body?—Do you not know that the body of every one of you is a temple of the Holy Spirit, whom you have from God?—Glorify God therefore in your body." Alas, that it did not avail to prevent the cruel follies of asceticism in following ages. In the light of the New Testament, the proper name for such malpractices is not Christian self-discipline, but pagan self-delusion.

We will here accept thankfully the high estimate of psalmist and apostle, and proceed to appreciate it, as we needs must do, in the fuller light and more exact knowledge which modern science has brought us.

With just one caveat. All that here follows relates to the body of a man. But the

most wonderful thing in physical creation is the body of a woman. The crowning mystery of mysteries, far too marvelous and holy for superficial description at the moment, is that process of gestation which some pious fanatics have even sought to besmirch with evil, by applying to it—under the strange spell of bibliolatry—the remorseful wail of a murderous adulterer in Psalm 51: 5. The witness of the New Testament is happily plain enough to the contrary, and there was never any need whatever for the Romish device of the immaculate conception to protect a woman from moral evil in passing through her hour of holy anguish. Moreover, even the throes of childbirth become, as Jesus said (John 16: 21), but a transient trifle compared with the following years of painless bodily peace, enriched with the added incomparable spiritual joys of motherhood, which in the vast majority of cases ensue.

II

THE MARVEL OF DAILY LIFE

LET us now consider what really happens in the lesser marvel of the daily life of an average normal man. When justice is done to it, we shall find that it is simply overwhelming, alike in the detail of its mystery and the beneficence of its totality. Out of every hundred persons met in an ordinary day's intercourse, it is more than probable that at least ninety of them have never given a moment's thought to their bodies all day long—with just the exception of satisfying a healthy appetite at meal times. And even then, ninety and nine out of every hundred hungry mortals never spend a moment in asking whence the appetite comes, or how it is that food satisfies and sends them away comforted.

In a word, through all the hours of the day they have never known that they had a body at all. That is the blessed painlessness which we call health—a boon, it is often truly said, which can only be fully appreciated when it is lost. In good health no man knows, at any given moment, where any part of his body really is. It is the special business of toothache, or lumbago, or gout, or stomach-ache, to inform him where certain portions of his body are, in order that he may pay them a little more attention, or repent of the injustice which he has done them. But with the average man, the ordinary blessed unconsciousness of his body, the painlessness which sets him free to use all his thoughts and energies in the multitudinous directions of a day's work, whether with hand or brain, is naturally and universally forgotten.

So that it becomes necessary to shake oneself into attention, and ask plainly what is actually taking place in this our

marvelous microcosm, whereby all the day's activities become possible. Common experience says—nothing; daily business says—never mind; current convention says—it doesn't matter; Godless superficiality says—there is nothing worth noticing. But these inanities are not good enough. Let us look more carefully at what is going on. Part, at least, of all the marvelous happenings we can appreciate, if we will. The whole truth—even in summary—as to all the physiological intricacies of even one hour's healthy life cannot be told, either here or anywhere. But it will suffice for our present purpose to take just a brief and partial, though careful, glance at unquestionable facts which relate only to the main elements of the case, in the ordinary daily life of any and every man or woman who "enjoys good health."

The structure of the human body is scientifically divided into distinct systems, such as bony, muscular, vascular, respira-

tory, digestive, excretory, etc. But for the sake of the general reader, we will be content to state the facts popularly, albeit none the less accurately. Take the case of an average business man. Let us follow him throughout the day. After a good night's rest, he rises refreshed, enjoys his breakfast, and sallies forth to his office. There he applies himself at once, without bodily pain or hindrance, to all the intricacies of modern commerce, uses his brains, and calls upon those around him to do the same. With a luncheon interval, this continues until evening, when he goes home tired, to seek rest or recreation, there or elsewhere, until once more he loses consciousness in sleep. It all seems very simple—so easy that it not only goes on without thought, but may be taken for granted again on the morrow, nay, for an endless succession of morrows, so that journeys may be planned and holidays arranged, without any query as to whether they will be possible. But mean-

while, all the time, what has really been going on inside him?

(1) If a man is to stand upright, let alone walk, or run, or work, there must be a strong and firm, though also light and flexible, bony skeleton, as the foundation of the whole frame. The fact that the whole vast army of vertebrate animals shares with man this wonderful possession, does not in the least mitigate, but rather increase, the marvel of its symmetry and utility. Thus our business man has some two hundred and fifty bones, marvelously tied together by ligaments, whereby the thirty-three vertebræ of the spine, sixty-four bones of the upper limbs, sixty-two of the lower limbs, with twenty-four ribs, and twenty-two skull-bones, are all united to subserve one organic whole, in a fashion which, if fully considered, would more than occupy all these pages, and would alone justify their main contention. We are compelled to omit the rest; but it seems positively

necessary to think a moment more about this human spine, which is seldom or never thought about, until some form of spinal disease or accident reminds us of its existence. Yet a moment's scrutiny suffices to supply much more than mere information. The spine, be it remembered, has to be the mainstay of the whole structure. Therefore it must be a firm, strong unity. But it must also be light, or the whole would be too heavy for locomotion. It must also be flexible, or no bending of the body would be possible. It must also be hollow, for somehow, throughout its whole length, there has to go that spinal cord from which the whole nervous system emanates for the control of the muscles. And this cord must be, by reason of its indescribable delicacy, protected from all injury.

How is all this managed? By the tying together of thirty-three bones, all unlike and queer-shaped, but so firmly joined that they form a graceful curve,

as beautiful as useful. Nor is that all. If it were, every step would mean concussion of the brain. In between all these vertebræ are delicate but wonderfully useful cushions of cartilage, which prevent any undue jolt, and so make walking a pleasurable possibility. Whilst from out these same vertebræ, all down its length, issue those marvelous nerve-threads upon which every motion of every limb depends. Thus, then, in full discharge of all its functions, this wondrous structure holds together all the rest of the body—and the man knows nothing of it. No thought of a backbone ever occurs to him, in all his goings to and fro, or in all the swinging of his limbs which the day's duty or pleasure may involve. In all its continual intricate movements, no pain is caused, nor even consciousness of motion.

(2) But bones, however remarkable in shape, and marvelously tied together, could do nothing without sets of muscles so attached to them by tendons as to make

possible all the ever-varying motions of the body. Of these muscular bands there are at least five hundred, many of which are simultaneously at work all through the day; and yet, unless rheumatism or lumbago should come in as a reminder, the man knows nothing about it. How much this means in regard to manual labor in general, and some kinds of it, such as the work of stevedores or miners, in particular, must be left to the reader's own thoughtful estimate.

Suppose, now, we turn from work to recreations, whether at home or in the open air, and ask how it comes to pass that these are so painlessly enjoyable. For this is certain, that if each individual in the crowds which fill our theatres and ball grounds, were reminded by pain of the exact locality of a tooth, or an ear, or a toe, these places would all empty themselves more quickly than they filled. Does any imitator of Paderewski ever consider how it is that he can practise for

hours at a stretch? Or any admirer of Kreisler ask how that combined motion of fingers, wrist, and forearm is possible, and often so long maintained? Probably not. Yet it were all impossible, but for the marvelous conjuncture of twenty little bones in each hand, securely bound up with eight more in the wrist, and three more above them. So then, we have fifty-six small bones, and six larger ones, in continual, complex, rapid, coördinated motion, and yet no pain, no friction, no inflammation. How is that brought about? On the next sea voyage, watch the engines, and ask the engineer why he keeps dodging about and putting his hand on this and that and the other part of his machine, and he will smile at your ignorance in being unaware that "she may get hot." Then what does he do to prevent such a hindrance? He lubricates all the parts that rub together, so that friction may at least be reduced to a minimum. Then ask him further why he

does not get the engine to lubricate itself? He will now wonder whether you are sane. And yet—it is precisely that, no less, that the artist's arms and hands and fingers are always doing painlessly, thanks to the indescribably wonderful synovial glands which first manufacture the human lubricating oil, and then apply it where it is most needed, without any fee or reminder—and equally without any thanks.

At a recent remarkable exhibition of piano playing, I carefully calculated that during the recital there had been not less than two million commands issued from the virtuoso's brain to his fingers, all obeyed without murmuring, and at the end without his exhaustion. So painless was all this mechanical execution, that neither he nor his listeners thought anything of it. They rightly admired his skill, but thought nothing of the means whereby alone it was possible. But the fortune of a Rockefeller awaits the man

who can invent, for any machine of human construction, such self-lubrication as every day's work and every night's concert, everywhere and always, exhibit.

Or again. Sixty thousand human beings congregate to witness a football game. Does any one of them, least of all the players themselves, spend one single moment in asking how it comes to pass that men can so wildly dash about, and so violently kick, or strangely twist their bodies, without putting all their limbs out of joint? Probably not. And yet—if only by some benevolent power they could be compelled for once to study fairly the ball-and-socket joint of the shoulder and the hip, they would truly hold their breath at every match they afterwards watched. Still, in most cases, indeed almost all cases, their anxiety would be unnecessary. For the joint which is most of all in use, is most of all protected. Not only is the hip joint which permits all the continual kicking wonderfully self-

lubricated, but the head of the femur, or thigh bone, is actually tied in to its containing cup, so that there may be the maximum amount of painless freedom with the minimum of risk of losing the leg after some mighty kick. Verily, if the players were logical they would close every game with the Doxology.

And the spectators would join in, if they also were reasonable. For much as they enjoy their shouting, it is necessary to remind them that that too is all muscular. And surely the muscles which rule the vocal cords are not less but more wonderful, for being so much more delicate. When excitement carries the crowd away, we read that they "shouted themselves hoarse." But the papers which report that never pause to ask how it is that all men and women and children everywhere in all their speaking or singing, are not afflicted with the pain and hindrance of hoarseness. A little while ago it was reported that Tetrazzini, under an acute

attack of laryngitis, was forbidden by the eminent specialist whom she consulted, to fulfil an important engagement, and was so troubled thereby that she burst into tears. But do those who listen enraptured to her normal voice, or have been carried away by the charm of Jeritza or Galli-Curci, ever ask how such entrancing melodies are possible without the constant recurrence of laryngitis? Is it nothing, that all singing is as painless for the singer as delightful for the audience? If, say for just one great concert, all the audience as well as all the artists, were held through all the performance by laryngitis, maybe afterwards they would appreciate the mystery of painlessness in their throat—unconsciousness—as never before. But a painless throat, or limb, is only a fraction of the mystery of the wonder-work of the manifold muscular development which, with blissful painlessness, permeates the whole human body.

(3) But this inscrutable development of bone and muscle could never take place without an adequate and constant supply of blood. It is particularly necessary for the purpose of these pages, to call attention to as much detail as is possible, in order to emphasize the mystery of the painless co-working of innumerable parts. So here we may well ask—what is blood? Not a red fluid, as all children and most men think, but a colorless fluid, containing almost incredible numbers of tiny microscopic bodies, corpuscles, which make it appear red. How microscopically tiny they are may be gathered from the fact that in one drop of blood there are at least 5,000,000 of them, besides some 30,000 other little white bodies of greatest importance—for they are nature's scavengers, and our valiant defenders from disease.

But consider now, only the red. They flow ceaselessly through the arteries and veins like a stream of infinitesimal

rounded tea-cakes, and upon that unconscious circulation our life depends. As to their numbers, the ordinary man weighing, say, one hundred and seventy pounds, has in his circulating stream, according to Huxley—a competent and careful observer—some 300,000,000,000. And if these were just taken out and laid flat in touch with one another, they would cover a space of 3,300 square yards. Whilst if they were arranged in a single line, just touching, they would reach 200,000 miles. The average life of one of these corpuscles is a fortnight, so that there has to be a ceaseless manufacture of fresh ones. Hence, if a man lives to be seventy, the corpuscles which in sweet unconsciousness have been formed in his body during that period, if put edge to edge in a line, would reach three times the distance of this planet from the sun, some 280,000,000 miles. Where they are born, together with the details of their manufacture, cannot be discussed here—but

unless a man should suffer from pernicious anæmia, this wondrous manufacture of hosts of living bodies out of his food, goes on painlessly, day by day, through all his years.

(4) Now further. We speak quite glibly about circulation. But circulation means motion continuously maintained. Does the average man know or care in the least, whence this motion comes, or how it so persists? In the vast majority of cases he has never yet known that he has a heart, so painlessly has its mighty work been done. But of a truth there is, proportionately to its size, no mightier work being done on earth. It is a little force-pump, six inches by four, beating rhythmically some seventy times in every minute—that is, 4,200 times each hour, and 37,000,000 times in a year. But how does it come to beat at all? And whence comes the rhythm of its impulses? To suggest that rhythm comes from nothing, or by chance, is in either case a contradic-

tion in terms. The fact remains that if a man should live to be seventy, his heart will have driven his blood through his arteries, about four and one-half ounces at each stroke, some 3,000,000,000 times —and he has known nothing of it. Yet, during all his years, this marvelous little engine has done work, every twenty-four hours, equivalent to lifting thirty-two tons one foot from the ground. Thus in the seventy years, it has lifted at least 840,000 foot-tons. During the same time, the blood will have been made to travel, in his body, not less than 25,000 miles. And all this painlessly.

(5) Meanwhile, another marvel, equally real, great, and inscrutable, has been going on. Unless a man has an attack of indigestion, he never thinks what becomes of his food when once he has swallowed it. The threefold necessary digestion in mouth, stomach, and intestines is quite unconscious, and therefore counts for nothing. Indeed, Robert Blatchford,

when trying in one of his books to explain away conscience, remarks that "it is no more mysterious than the stomach"—as if the stomach and digestion were all perfectly simple and easily explained. Whereas the ultimate mystery of the stomach, along with that of the duodenum, the pancreas, the small and large intestine, is as insoluble, in spite of all our modern knowledge, as any miracle in the Bible, or any difficulty in Christian doctrine. What does the man in the street, or the millionaire in a fashionable hotel, know or care for the fact that his food has to pass through these two intestinal tubes to the length of some thirty feet? If the wonderful, beautiful, and absolutely necessary little "villi" of the small intestine alone were smoothed out, they would occupy a space of more than fifty square yards. Through the course of all these, absorption goes on, though no man of science really knows how. Nor does it ever occur, either to the agricultural la-

borer or the gourmand, to ask how, seeing that these long tubes are necessarily coiled up in the body, the food during its digestion is propelled along the intestine —why should there not be every day some stoppage in the bowels, with fatal results? As to the total process of digestion, that is far too complex to admit of even brief summary here. Enough that for ninety per cent. of humanity, it is as painless as it is wonderful and necessary. The miracle of this painlessness cannot be better put than in the words of Dr. Ronald C. Macfie, eminent writer on medical subjects:

"It is very extraordinary to reflect that man's brain cells, and blood cells, and muscles, and eyes, and teeth, and bones, are all made of such things as grains of a cultivated grass, and mutton chops, and red herrings, and apples, and oranges, and potatoes, and cheese. We put a spoonful of porridge into our mouths, and in a few hours' time it may be part of one of the wonderful cells in the brain; we crunch a nut

between our teeth, and in a few hours' time it may be woven into the retina of the eye."

Yes—and yet every day, in America alone, there are scores of millions of men and women who painlessly eat and drink, and reap the fruit of all this marvelous work within their bodies—and think no more about it.

(6) But they also breathe; though this again excites no astonishment, and occasions no thankfulness, no thought—until they get bronchitis, or pneumonia. Yet during every ordinary day, the average man breathes 1,000 times each hour, and inhales six hundred gallons of air; that is 14,400 gallons in a day, inhaling and exhaling all the time in painless forgetfulness of what he is doing. Of course, he has no choice herein. If he would live, he must breathe. But with almost all men and women, as with children, there it ends. It is nothing to any one of them that in order to purify the blood, through

the oxygen of the air, there must be in the ever-forgotten lungs not less than 700,000,000 air cells; which, if spread out flat, would cover a total surface of one hundred and twenty square yards—that is, enough to occupy the whole floor of a room twelve feet square. But these minute cells are also connected with the necessary capillaries—tiny tubes—which, if stretched out in a single line, would reach across the Atlantic.

Does the man in the street, or in the office, or on the train, ever think of this? No; why should he? There is no pain to remind him. No; he just uses all this wondrous apparatus 20,000 times every twenty-four hours, and treats it all as nothing—unless he gets a bad cough. Then he murmurs at the mystery of pain and, if he is sufficiently rationalistic, denounces the idea of a Providence that permits such things. But it is ignorant ingratitude. For the cough is not a disease at all; it is only a reminder that there

is something wrong with his breathing apparatus; and an effort on the part of Nature to clear it away, and restore to him his lost mystery of painlessness.

(7) Let us assume that the cough is cured, and his breathing no longer troubles him. He is then free to do his daily work. Which means that he, in common with all those around him, has to "use his brains." In our time, certainly, there is ever-increasing demand for brain-work; and no adequate summary can be made of the extent to which, from the child at school to the university professor, or the city merchant, or the Prime Minister, brain-work is today a downright necessity. It is the more remarkable how very few brain-workers ever think of their brains. This marvelous, unparalleled apparatus works so painlessly, that in ninety-nine cases out of every hundred, the busiest brain-worker has never known that he had any brains at all. He daily thinks, feels, wills, estimates, calculates,

hears, speaks, decides, without ever for one moment asking how he so demonstrates his sanity and intelligence—until he gets a headache; and then the mystery of brief pain makes him completely oblivious to the preceding greater mystery of painlessness.

III

"FEARFULLY AND WONDERFULLY MADE"

BUT what really is this brain from which so much is expected, and by which so much is accomplished? Well, it is to look at, a round, wrinkled, pinkish, flabby mass, weighing about three pounds. But the wonder of its working is beyond all science to understand—however much we now know of which our forefathers never dreamed. It would require a whole library to do it even partial justice. Suffice it to say, in summary, that science can no more unravel the painless mystery of the inner working of that cerebrum and cerebellum which are in every human skull, than theologians can clear up the mystery of the "hypostatic union," relating to the person of Christ. We have to

be content to recognize and appreciate the fact that our daily work—*i. e.,* all our thoughts and words and deeds—depends unmistakably upon what happens in the mere thin skin of this brain, the "gray layer," which is only about one-fifth of an inch in thickness, but contains some 9,000,000,000 distinct cells. All these, moreover, are in definite connection with the innumerable nerve fibres which constitute the internal, or white matter. The cerebrum, or larger frontal portion—with its two hemispheres—is inseparably connected with the smaller part, the cerebellum, at the lower back of the head. Inquire, then, of your clever, energetic, successful, city merchant, whether his cerebrum is in good working order, and he wonders if you are sane. So utterly unconscious is he of the incalculable activities of the innumerable cell connections, in the work of every hour, nay, every minute, of his busy days.

Or ask your highly paid athlete if he

appreciates his cerebellum, and he will think you have escaped from an asylum. So painlessly—and one might truly say, miraculously, for the indescribable wonder of it all—have the commands for coördinations from the higher brain been carried out. And yet—without the marvel of its ceaseless working, he would be more helpless than a baby learning to walk. Let but a needle be inserted into certain parts of it, and he would kick no more. It is an interesting, and to some folk very exciting pastime, to watch a football or baseball game. Does one in ten thousand ever consider how it comes to pass that the pitcher can so deliver the ball; or the batter so strike it; or the half-back so kick a goal? No; familiarity breeds contempt, and an insoluble mystery of good becomes, to the popular mind, a worthless commonplace.

(8) We may not, however, quite leave even this brief appreciation of the human brain at this point, without considering

more carefully its nerve connections throughout the whole body. There are, happily, today many valuable books easily accessible, in which this subject is worthily considered; but they are crowded out by the rush of football, cricket, tennis, and pictures. Whence it follows that the population, as a whole, knows nothing and cares less about that marvelous nervous system through which alone all their activities and enjoyments are possible. But we must here spend a moment upon nerves, for whether the reader be a "nervous" subject or not, it is through the measureless mystery of the ramification of infinitesimal nerve-threads throughout his whole body, that his life is possible, let alone enjoyable. The spinal cord has been mentioned above; but mere mention is utterly inadequate to do it justice. It is true that we are surrounded on all hands, in Nature, by marvels which baffle description and transcend imagination. But amidst them all, it may be said with

truth that the human brain and its inseparable nervous system constitute the greatest wonder of the universe so far as we know it. Think, for one moment only, of what this spinal cord really involves. From it, through its whole length, minute and delicate nerve-threads are conveyed directly from the brain to the extremities. Every motion of the fingers through which this page is typewritten, represents a command from the cerebrum, through the cerebellum, to the muscles of the arm, hand, and fingers, by means of these nerve threads. The same applies to all the unspeakably rapid movements of the hands and fingers of a Pachman or a Kubelik. It must, also, be borne in mind that in every such motion there is a double nerve action. That is to say, there are two distinct kinds of nerve-threads, the afferent —whose function it is to convey to the brain some impression from without—and the efferent, which carry from the brain its response to that impression. Think

of this happening so many times in a second as must be in playing one of Liszt's or Beethoven's masterpieces. Or imagine the nerve expenditure in the modern development of typewriting, which now occupies thousands of our girls. One of these dexterous young women is just reported in the papers as having accurately written 4,069 "taps"—letters requiring selection—in five minutes—eight hundred and twelve a minute—more than fourteen each second! And all such action painless!

But that is by no means all. There are four times as many afferent nerves as there are efferent. What does that mean? Much more than can here be specified. But how much, may be gathered from the fact that whole age-long controversies about free will and determinism, have somehow to be solved here—if they are soluble at all. The plain fact is that every hour of every day there are more than 10,000,000 nerve fibers, far more

delicate than all the wit of man can fashion, or the speech of man describe, at our service. And of all this service, the average man in a normal condition knows nothing. For unless he has marred this indescribably intricate machine by evil habits, it all works painlessly, as required, throughout the year.

(9) It must be specially noted that the specific instances here mentioned as illustrating the mystery of painlessness, are merely a partial and superficial summary of the actual facts. Modern physiology gives a far more intricate and correspondingly wonderful account of the house we live in. For instance, the following facts deserve much fuller notice and deeper appreciation.

The nervous system is really much more complicated than has just been described, and it may be useful to quote hereupon some recent significant words of Sir Arthur Keith, of the Royal College of Surgeons:

"That there exists in the human body a universal and extremely complex system of intercommunication, corresponding to our postal organization, is now a matter which modern physiologists have placed beyond doubt. These missives get the name of hormones (Starling, 1905); they are of many kinds, corresponding in number to the needs of the body. In reality these missives, or hormones, represent a particular kind of letter. They are of the nature of a writ or summons. The unit or assemblage of units receiving such summonses have no option; they must respond. They obey automatically. We may say, in truth, that the cells or units of the body human represent an immense assemblage of conscript citizens."

Still further Sir Arthur remarks that

"Certain clusters of units, such as the pituitary and pineal glands, the thyroid and adrenal bodies, become specialists in the manufacture of hormones."

It is well for us that such manufacture goes on. For the blessed unconsciousness which we call health, depends immeasur-

ably upon the regular work of these and other ductless glands. The apostle's delineation, 1900 years ago, can scarcely be improved upon, with all our modern knowledge.

". . . all the body fitly framed and knit together through that which every joint supplies, according to the working in due measure of each several part, makes the increase of the body unto the building up of itself in love."

"Love" here may be well translated painlessness. For what if all these several parts did not thus work? No one thinks anything of what his spleen is doing for him. Yet all the time it is destroying worn-out red blood-cells, and forming new white ones. So, too, the lymphatic glands, of which no one ever thinks, are always forming new white blood-cells, as well as catching and destroying noxious microbes and cancer cells. As to the thyroid and adrenal bodies—if the former were inactive, the terrible diseases known

as myxœdema or cretinism would soon make life a misery and a burden. Whilst the latter form an essential part of the normally painless but most complex excretory work of the kidneys, without which life would end in a few days. Equally necessary to life and health is the tiny pituitary body. Not one person in ten thousand knows or cares that his head contains such a little double gland, but without it he could not go on to live. Once more let a duly qualified expert sum up the case for us. Dr. Macfie writes:

"All these glands, then—spleen, lymphatic glands, thyroid gland, adrenal bodies, and pitutiary body—play most interesting, important and mysterious parts in the economy of the body, and teach us what a wonderful and mysterious organism the body is. Who would have imagined that a tiny gland within the skull would influence the growth of the skeleton? Who would have thought that disease of the little adrenal caps of the kidneys would produce a bronzing of the skin? Who would have

thought that a little deficiency of thyroid secretion would produce myxœdema and cretinism? Yes, so it is."

Still more, who would have imagined that all these, and a myriad other complicated processes, could go on inside a human body day by day, year in and year out, and the highly sensitive man or woman know nothing of their existence, because they all work so painlessly? Only today I met in the street a man who, in an active life for more than eighty years, had never known, and does not now know, that such things were going on within.

(10) Nor does he, in common with myriads more, know, except by hearsay, that he has a liver. But the physician knows; and so do the advertisers without number who urge their pills or salts as the only panacea for a healthy happy life. What do such quacks know or care really about the liver? Nothing at all; save that it sometimes fails to act normally, and so gives them their opportunity to relieve

you—of your money. But in very deed there is something to consider. The old humorous reply to the question, "Is life worth living?" has indeed as much truth in it physically as morally. "Depends on the liver." For this liver is "not only the largest gland in the body, but it has greater chemical versatility than any other gland." Assuming, as we must, that a healthy liver is a sine quâ non of general health and happiness—what does that involve? When this large mass of brownish substance is examined in modern light, what do we find? Only this: that it is composed of some 14,000,000,000,000 cells, each of which cells is in turn composed of 64,000,000,000 groups, known as molecules, and these molecules contain some 300,000,000,000,000 atoms. So that if any average man should be curious to know how many living atoms he daily carries about with him in this part of his body alone he has only to write down forty-two, and after it put twenty-

six ciphers. And that staggering estimate will not be either imagination or guess work, but sober fact.

All these—if he is physically "well"—are not only living but working. And not only working but agreeing; each doing its individual part. Then, without strikes, or quarrels, they all join together to produce that strange but most necessary fluid which we call bile. Every day as much as two pints of this yellowish or greenish fluid must be manufactured; and either pass at once into the duodenum for immediate use, or be stored up in the gall bladder. But this is far from all that every mortal owes to this forgotten or despised organ. For it not only makes bile, but stores glucose, a kind of sugar, as glycogen, and then turns the glycogen into glucose again when the tissues call for it. Besides which, the liver also prepares fats for the use of tissues, and together with the pancreas, builds up complex fats containing phosphorus, which are important

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items in the nervous system. If, however, the pancreas does not act, diabetes sets in. The point to be noted here, is that literally millions of men and women are always in blissful unconsciousness that they have either pancreas or liver, by reason of the painless regularity with which these do their most important and indeed absolutely necessary work.

(11) Let us now turn to what may be considered a higher realm, namely that of our sense perceptions. We pity the poor blind—and rightly, for the preciousness of good sight is quite beyond words to estimate. But out of the myriads of men and women who possess it, are there many—say one in twenty thousand—excluding doctors and scientists—who appreciate what that means, or know what it includes, even if they had each only one eye? Think of it for a moment. A beautiful little ball in a tough protecting skin; filled with transparent jelly; provided with two delicate, wonderful lenses; and

having, at the back, a retina with twelve distinct layers of delicate nerve-structure, containing—though only one hundred and twentieth of an inch thick—3,000,000 rods and 4,000,000 cones, all of which are absolutely necessary for clear vision. By means of these, ethereal vibrations are conveyed to the base of the brain, by an optic nerve which is itself composed of at least 500,000 fibers. It seems a shame to have to leave unmentioned all the other wonderful and beautiful arrangements, through which a landscape covering many square miles is reproduced to our consciousness on a small portion of the tiny space at the back of the eye.

But again. It cannot be overlooked that with this wonderful organ we are also able to distinguish color. Here we may pity the poor color-blind whom occasionally one meets. Only it ought not to be forgotten that the raptures of the artist's eye, and the little child's delight at a feast of color, require a corresponding appa-

ratus. Thus, in order to appreciate the beauty of a scarlet geranium, the eye has to be sensitive to ethereal vibrations at the rate of 500,000,000,000,000 per second; and if we then turn to admire a violet, half as many more vibrations have to come in.

Is that all? No; it is very far from all the marvels of even one healthy human eye. But have we not each two eyes? And with our two eyes do we not see one object? Still further, let the reader who, we hope, is thus endowed, close one eye for a while, and with the other either read on or look around him, for a few minutes. When he then resumes his ordinary capacity, does not the improved stereoscopic vision compel him to pity the poor one-eyed man? How, then, when justice is done to all the indescribable complications of one eye, does it come to pass that our two eyes work together with such complete and painless harmony as to make us forget, all day long, that we are using

two wondrous organs at once? Out of a million of our fellows so endowed, how many appreciate what they are using every minute? Until a tiny speck of dust gets into the eye and reminds them.

(12) But to be deaf is, some say, as great a calamity as to be blind. The late George Matheson, the blind mystic, used to say that it was greater. Does the ordinary man or woman, then, ever think of the painless mystery which enshrouds their powers of hearing? No; they are so engrossed with their musical evenings and their wireless, that they have neither time nor thought for that. Even at their grand opera or at a delightful concert, where they revel in the harmonies of Beethoven or the rhapsodies of Chopin, or the grandeur of Bach—to say nothing of the rapturous melodies of a Galli-Curci or a Tetrazzini—how many in a thousand are there who ever ask how these raptures become possible? Or what a "musical ear" really means?

It is verily painful for anyone who does know something about it, to have to dismiss it, as here, with a mere superficial reminder. For the real wonder-mystery of the internal ear alone, which is only a portion of the whole—completing as it does the function of the external and middle ear—is far too great for a few words. The musician, as a rule, never thinks of it —takes it all for granted as a matter of course. So do his pupils, and his audiences. They quite acknowledge the merits of a Hardman or Steinway piano, and the priceless worth of a genuine "Strad" —utterly ignoring the duplicated marvel in their own heads, compared with which the best violins or pianos ever fashioned are as clumsy and coarse as a cart rope by the side of the hair of a little child. Today, wireless enthusiasts without number praise their phones or loud-speaker because they are so sensitive that they can communicate vibrations which only occupy the one hundred-millionth part of

an inch. The fact that the human ear is just one million times more sensitive than that, does not appear to them to merit notice. In a word, only deafness or earache serves to remind the average man or woman that the ears with which they hear are painlessly as well as wondrously serving them, everywhere, and always.

(13) Yet again. When through the interworking of such real though inconceivable sensitiveness, our enthusiast, listening in, clearly distinguishes the voice of Sir Oliver Lodge, as he discourses upon the ether, or of a Congressman discussing politics, does it ever occur to him to ask how it is that the famous physicist, or politician, can speak at all, let alone incarnate in their speech such knowledge and wisdom? No. We talk, and talk, and talk, all day long, on all sorts of themes, in all sorts of ways, without knowing or caring in the least that all our speech wholly and only depends upon the healthy functioning of a little portion

of one side only of our brain. And yet—all we have opportunity to say here is—just injure "Broca's convolution" on the left side of the cerebrum, and no politician would then deliver another speech, nor preacher another sermon, nor friend say another kindly word to friend. Yet through all the countless speeches, sermons, words of social intercourse which fill our hours, this wondrous interplay of brain, and nerve, and muscle goes on, hour by hour, without friction, or pain, so unconsciously that it is universally forgotten and ignored—until laryngitis or aphasia comes to act as reminder.

(14) Before we leave this rough and superficial though truthful summary, there are yet two matters of greatest importance which must on no account be overlooked. Each of the items above-mentioned needs and deserves far more attention than could possibly be given to it in the whole of this book. Let that be borne well in mind. Then, and only

then, can the greatest mystery of all be apprehended. Namely, the inexpressible marvel of the coördination of all these parts, so as to form one total, organic, conscious, painless unity.

Sir Arthur Keith has been demonstrating recently that the human body represents a commonwealth, or rather "a slave state," in which every unit "has to become a serf or slave to all the other members of the state." But such a figure does not do justice to all the facts. In a commonwealth, say of a million human beings, there is manifest similarity between all the units. In spite of all differences of form or of opinion, they are all human, with corresponding needs, and functions, and tendencies. But in the human body there is no such similarity. Words fail to represent the unlikeness between the structure and functions of all the various parts named above. The marvels of such unlikeness only become really manifest after thorough research.

The complexity which we have to consider starts indeed with that human "ovum," from which all else—somehow—follows. Its size is less than the dot on the letter "i" which is here printed. Yet careful calculation, not mere guessing, decides that in this infinitesimal initial ovum there are not less than 1,728,000,000,000,000 molecules, containing thus, 8,640,000,000,000,000,000 atoms. How intricately and mysteriously these develop into the distinctive organs which must all work together to make a healthy human body, we have seen in brief summary above. But to do justice to any one of these several portions and their functions, is really beyond our powers of thought. Who, for instance, can grasp even the truth that "in the end-joint of one's little finger there are some 15,000,000 units"—double the population of Greater London? In that joint, however, there are no quarrels, no strikes, no rebellions. Who has any pain in the end-joint of his little

finger? But, also, who ever reflects that this means 15,000,000 units working in harmony?

Nor is that all. There is a bone in that little joint. Whence and how does it come there? It is but a fraction of the work of the body's bone-builders, and concerning these, says Sir Arthur Keith—in a rationalist periodical—"there are some 60,000,000,000 units of this bricklaying caste, in a human body." And these never cry "Down tools"; nor restrict the number of bricks that may be laid in a day. All these incalculable and indescribable but real and active units are working together for good in an average human body. How many? The lowest estimate is a billion; but an equally scientific estimate reckons it in trillions. We will here be content with the lower number, on condition that the complicated relations of these units be steadily kept in view. Thus the liver cell, whose minuteness we try in vain to realize, is nevertheless compared

on scientific grounds, in its mechanical complexity, to "a Mauretania full of chronometers." The matter to be stressed here is that this whole vast universe of living parts, works together as *one unified whole* in the normal human body, with such painlessness that the healthy man or woman knows nothing about it—does not know that he, or she, has a body at all, unless some fraction of this vast whole goes wrong, and consequent pain reminds him or her of the fact.

(15) Yet if it be possible to imagine an even greater marvel, surely it is that which happens to all healthy mortals when their day's work is done. Poets have sung about "Tired nature's sweet restorer, balmy sleep"—but neither they nor all the men of science living, have been able to explain what sleep is, or how it comes to pass. We only know that somehow or other we *must* have it. No disease is more to be dreaded than real insomnia. Developing civilization makes sleep more diffi-

cult to insure than in savage times; it comes to children more easily than to adults. But what does it mean? Do not those who sleep best, think least about it? Well, happily for us, it does not mean that all the wondrous work of the body, so roughly sketched above, ceases. In some respects it goes on more efficiently than ever; which accounts for our being refreshed, after a good night's sleep.

It seems as if certain parts of the body have to be wound up like a thirty-hour clock. But has anyone such a clock which can be wound up absolutely noiselessly? Yet if the noise may represent pain, it is thus that the healthy man, after his wearying day is, painlessly, wound up in readiness for the next. We wish each other "dreamless sleep." But it really matters little whether we dream or not, so long as painless renewal goes on—as it does in the case of the incalculable majority of men, women, and children. The whole immeasurably complex organ unites,

somehow, to shut off our sensations, and turn on still more of that sympathetic nerve system which never ceases to work for us—and so we sleep—we know not how. The deeper and sweeter and more refreshing the sleep, the less we know about it; with all the rest, it becomes a commonplace which only those who lose it know how to estimate as it deserves.

IV

THE DIVINE SECRET

AS we close this poor summary, there is one thing which must be most definitely stated and duly emphasized. The whole of this summary—and all else which it includes—is indeed true. *These facts and figures are not fictions.* They are not sentimental imaginations. They are realities. *They represent the unquestionable actualities of every painless hour, in every living human being.* It is for each reader to sum up and ask himself, herself, how many such hours he has had. For myself, I can but record—with thankfulness beyond expression—that I have had more than 600,000 such hours. For which reason, as a rationalist, no less than as a Christian, in the light of our modern knowledge, I am bound to con-

sider the significance of all these hours, even more carefully and deeply than could the writer of Psalm One Hundred and Thirty-nine. Nor can I possibly overlook the fact that I am surrounded by great numbers of my fellows who have had almost if not quite as many painless hours—and by not a few who have had more. So, when problems of pain, instances of suffering, compass me about, such as I can neither deny nor honestly minimize, and I am tempted to echo the other Psalmist who cried—in Moffatt's rendering—

> "*I almost slipped, I nearly lost my footing,*
> *In anger at the godless and their arrogance*
> *At the sight of their success.*
> *No pain is theirs, but sound strong health,*
> *'Tis all in vain I have kept my heart from stain, kept my life clean*
> *When all day long blows fall upon me,*
> *And every dawn brought me some chastening.*"

I am compelled by other facts—facts

which are simple, actual, scientific, daily, personal, and innumerable realities—to put into his words a meaning he could not foresee.

> *" So I thought of it, thinking to fathom it*
> *—but it sorely troubled me,*
> *Till I found out God's secret."*

There I cannot but leave the Psalmist behind. For that secret to me is not what then satisfied him. I have more knowledge, more opportunity, more hope, than he had. The open secret to me is not the sure and swift mortality of evildoers, but the present universal beneficence of the divine intention, and this ceaseless working of the mystery of good, when not marred or prevented by human sin and folly. It is to this conclusion that one so far from Christianity as Sir E. Ray Lankester testifies, in his Romanes Lecture:

> "In the extra-human system of Nature, there is no disease. . . . The adjustment of organ-

isms to their surrounding is so severely complete in Nature, apart from man, that diseases are unknown as constant and normal phenomena, under those conditions. . . . It seems to be a legitimate view that every disease to which animals (and probably plants also) are liable, excepting as a transient and very exceptional occurrence, is due to man's interference."

In this whole divine secret of normal painlessness, then, there are at least seven things to be duly considered and appreciated. Here they can only be mentioned. But if for every event there must be for our minds, so long as we are sane, an adequate cause, then we are driven to ask ourselves some very pertinent questions concerning these realities which we have passed in such brief review. The other marvels of this overwhelming universe may be postponed. It is enough that we learn to appreciate ourselves. One must ask these queries at least.

(1) How all these undeniable marvels in our ordinary bodies have come to be

what they are. The magic word of today is Evolution—which may mean everything or nothing. No one indeed knows how it works, or how variations or mutations come to pass. But all that is needed is time; so that amid the incalculable multiplications of purely accidental mutations, through "blind chance" the least able to survive may be eliminated, and only the vigorous and healthy survive, and by procreation multiply.

It does not enter into the scope of these pages to embark upon the Spencerian-Weismannian controversy, nor to discuss evolution in general. But any child can see that the attribution of all that has even here preceded, to blind chance, is a sheer counsel of contradiction and despair. The mystery of the painless adaptations summarized may be left to speak for itself, if we take one illustration to make it clear. There are twenty-six letters in the English alphabet. On this page there are possibly two hundred words, which, it is

hoped, convey some sense. We are told that "it has taken Nature at least one hundred million years to elaborate the society represented by a child's body," and that this wondrous microcosm, in the child, has come to pass by "purely accidental variation under no guidance save blind chance." Let us, then, put one thousand letters of our alphabet, formed of the same metal which printed this page, into a machine capable of jostling them fortuitously for one hundred million years. Shall we then have the words, and the sense of them, which are here before us? Any child will see and say that it is ridiculous, so must every sane man. But we have to think not of two hundred words and their significance—but of at least billions of living units which have so come to form adaptations, in myriads of ways, that millions of human beings have thousands of painless hours, in which all the activities of their nature may find unhindered opportunities for development.

In face of such realities, evolution as the divine method of creation may be indeed both true and sufficient, far surpassing in grandeur, as Darwin acknowledged, the former Paleyan conception of special creation. But atheistic or agnostic evolution is sheer irrationalism, and only a philosophy for the wilfully blind. The questions which must ever press for answer to that effect are such as follow here.

(2) How, in the marvel-mystery of their individual functioning, each of them is not only thus perfected, but maintained from hour to hour, through all the years?

(3) How, in their incalculable number, they come to be so coördinated as to form such an indescribably complex, ceaselessly working, but definitely unified organic whole, as the human body?

(4) How all this coördination is painlessly carried on from day to day, so that we know nothing of it, and do nothing towards it? Indeed, our sympathetic system does its work best, normally, without

our conscious interference at all. The problem of the physician often is how to get a patient to let himself alone.

(5) How, when such portions as we do control become temporarily used up, and we are tired, the insoluble mystery of sleep restores their vigor, and renews our life?

(6) How, when noxious influences—disease germs—attack us, or lie in wait for us with ill potentialities, inside the body, as they continually do, our phagocytes, the white cells manufactured for us without our knowing it, unbidden, watch to defend us, and attack the intruders? And how, when accident or injury overtakes us, these internal renewers—unless tied and bound by the folly of imbibed alcohol—come immediately, unasked, to build up the tissues again, "by first intention"?

(7) Last, but surely not least, it must be noted that in all this there is absolutely no respect of persons. It is all as real and

efficient for the meanest pauper as for any king or queen. The poorest tramp is herein cared for quite as much as any aristocrat. So that if the world's population is now accurately estimated as approximately 1,800,000,000, then, with comparatively few exceptions, all these are incarnations of the mystery of painlessness, and this wonder of wonders is the norm of human life, whatever the exceptions may amount to. The manifest tendency for all ordinary thinkers is to make too little of the normal, just because it is the normal; and too much of the exceptions, just because, being exceptions, they draw upon themselves unusual attention. No one with a heart will deny the reality and the poignancy of the mystery of pain, alike as to its extent and intensity. But no one with a head, viewing fairly the whole realm of human existence, can contradict the estimate that it sinks into comparative insignificance, beside this boundless, ceaseless, measureless

mystery of painlessness, which prevails throughout all nature, and means most of all in and for human nature.

Our modern organs, in churches and halls, are marvels of structure and adaptation. It is difficult to imagine what would be the delight of a Bach, or a Beethoven, or a Mozart, if they could be resuscitated and permitted to render one of their matchless compositions on such an instrument. Yet the very best of them is but a crude and clumsy toy compared with the normal human body. It has become the custom in some quarters to refer to our bodies as machines, but such a term may be altogether misleading in failing to do justice to the reality. For as Leibnitz said:—

"The organic body of each living thing is a kind of divine machine or natural automaton, but it infinitely surpasses all artificial automata. For a machine made by the skill of man is not a machine in each of its parts. The tooth of a brass wheel, for instance, has parts and

fragments which have not the special characteristics of the machine; whereas the machines of Nature, namely, living bodies, are still machines in their smallest parts *ad infinitum.* It is this that constitutes the difference between Nature and Art, that is to say, between the divine art and ours."

Consider, then, one of the best of our modern machines for producing music. And imagine that in the course of its employment, one or two notes should get out of tune; or some of the "trackers" should "cipher"; or some pneumatic tube or "spotted metal" pipe out of the 10,000 should go wrong. Would anyone, short of a lunatic, cry out either that there had been no organ builder, or that he must have been a fool, if not a knave? Yet that is what the favorite indictment of rationalistic disbelief amounts to, in face of all the facts of human existence. For these include the universal, continual, and painless, that is flawless, use of an instrument infinitely more marvelous and com-

plex than any organ or machine that the wit of man has ever conceived, or will ever construct.

It is not religion, therefore, so much as common sense, not sentiment but honesty, not pietism but well-warranted gratitude, which leads a thoughtful man to say, "Bless the Lord, O my soul, and forget not all his benefits!"

As to what is in us besides the brain, or what will be for us hereafter beyond the grave, nothing is here said, though much may be inferred. In the case of a fine organ, say with five manuals and a hundred stops, which took ten years to build, it would hardly be thought to have justified its construction if, after being used for five minutes, it were dismantled and reduced to fragments. But since we are told that it has taken one hundred million years to produce a human being—if after life's brief moment, nothing is to be left as the result of all that travail but a handful of dust, then Tennyson and Fiske

were both of them right. The latter in his emphatic avowal that

"The more thoroughly we comprehend that process of evolution through which things have come to be what they are, the more we are likely to feel that to deny the everlasting persistence of the spiritual element in man, is to rob the whole process of its meaning. It goes far toward putting us to permanent intellectual confusion."

Whilst the former adds all the force of poetry to such an estimate. If all the marvels of human evolution end in his being "blown about the desert dust, or sealed within the iron hills"—

"No more? A monster then, a dream,
A discord, dragons of the prime
That tare each other in their slime,
Were mellow music matched with him."

For the moment we leave all that is thus suggested, to other occasions. All that has been mentioned above is but as the porch of a palace; but none the less won-

derful or significant for that. Tennyson, after all, did it but scanty justice when he wrote—

"The Lord let the house of a brute to the soul of a man,
And the man said—am I your debtor?
And the Lord said—keep it as clean as you can,
And then I will let you a better."

The apostle was much nearer the truth when he asked the Corinthians the question quoted above, and all the latest knowledge of ourselves that modern science can supply goes to emphasize his appeal—"Glorify God, therefore, in your body."

That certainly, if there were nothing else in the New Testament, is in itself sufficient and final contradiction, and Christian condemnation of the cult now calling itself Christian Science. For this dismisses as unworthy of notice all the wondrous elements which, as we have

seen, constitute in their co-working the mystery of painlessness, and under the guise of a false philosophy flouts all true science by propagating the absurdity that the human body is a myth, and all pain is a delusion. The public menace of such fanaticism is even more serious than the private delusion, as has been shown above. The scorn which this modern gnosticism pours not only upon the human body, but upon the noble workers in science and medicine who are daily saving lives and improving the health of the nation, calls for reiterated condemnation. There is not one single consistent Eddyist living. For every day of their lives they renew their "myth" with food, and do all their work in painless peace, *not* because pain is mere imagination, but because the bodies which they despise, but the apostle so honored and bade us honor, are all the time in the myriad ways outlined above, by means of a thousand million real and active parts, working together for good,

and calling upon us one by one to hallow the temple which is our present abode, by all holy living and noble endeavor.

Thus by gratefully appreciating all the benevolent marvels of our daily existence as the years pass on, when shadows fall upon us, at least memory may help to keep us from losing faith and hope. Even as in the case of that lofty specimen of what humanity may become—William Ewart Gladstone. At the last, after his long and honorable career, cancer held him in its fell grip. It is reported that one day a sympathizing friend said to him—"Oh, Mr. Gladstone, I fear you have had much pain these last six months." To which he replied—"Yes, my friend, I have. But that is no reason why I should forget that I have had twice eighty-six times six months free from pain." That is not only piety; it is the truest reason and the fairest justice. For the rest, the Christian hope suffices, whether we set more or less value upon those phenomena of modern

psychical research, which are most loudly contemned by those who have least studied them. In any case, the words with which Dr. Macfie concludes his valuable work on *The Romance of the Human Body,* apply to all the preceding summary, and may well serve to close its reminder that we are "fearfully and wonderfully made."

"These are but broken glimpses, incoherent fragments of the truth; but such glimpses and such fragments are enough to save us from despair, and to give us a belief that death may be but the portal to a yet 'fuller life.'"

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